

LOW DENSITY PAPER AND PAPERBOARD ARTICLES

Abstract of the Disclosure

The invention provides a low density paperboard material and associated method for use in producing an insulated container, and is especially well-suited for making cups. The paperboard material comprises a paperboard web including wood fibers and expanded microspheres, and has a relatively low density ranging from about 6 to about 10 lb/3MSF/mil, a relatively high caliper ranging from about 24 to about 35 mil, and an internal bond strength of at least about  $80 \times 10^{-3}$  ft-lbf., preferably at least  $100 \times 10^{-3}$  lft-lbf. For applications such as cups the material is also coated on one or both sides with a barrier coating, preferably low density polyethylene, to limit liquid penetration into the web. The low density paperboard material of the invention is convertible for manufacture of containers, particularly cups, and exhibits insulative properties comparable to higher cost materials conventionally used to make cups. Also, the surface of the low density board may have a Sheffield smoothness of 300 SU or greater compared with the surface smoothness of 160 to 200 SU for conventional cupstock, the latter having been thought necessary for adequate print quality. However, it has been found that the low density board exhibits good printability on flexo printing machines despite its relatively rough surface, which is surprising and bonus effect realized along with the insulative and other properties of the board.